EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

        Authorization for this examiner's amendment was given in a telephone interview

with Scott Garret on 11/12/2009.

2.   The application has been amended as follows:

        Claim 1 has been amended to read:

        A manager for use in a system of grid computing comprising a processor

implemented ~~in~~ as hardware and programmatically structured to define a computing

task based on data received by said processor, said processor further programmatically

structured to assign a portion of said task to each of a plurality of clients connected to

said manager via a network, each of said plurality of clients configured to produce a

result by performing a computation using said portion, said processor further

programmatically structured to approximate said result of performing said computation,

where the step of approximating is at least one of: using the initial data that was passed

to the failing node as the approximate result or using the last received previously cycled

result from a failing node that has successfully cycled more than once as the

approximate result, using said portion when said client fails to return said result to said

manager, wherein said processor is configured to determine a client failure to return

said results based upon at least one condition selected from a group of conditions

consisting of: a receipt of a message indicating that the client is no longer connected to

the network, a receipt of a message from the client indicating that said result is not

forthcoming, and an expiration of a previously defined time delay for said client to

provide said result.

　　　　Claim 12 has been amended to read:

　　　　A system of grid computing comprising: a manager computing device

programmatically structured to define a computing task and assign a portion of said task

to each of a plurality of clients connected to said manager via a network, each of said

plurality of clients configured to produce a result by performing a computation using said

portion, said manager further programmatically structured to approximate said result of

performing said computation, where the step of approximating is at least one of: using

the initial data that was passed to the failing node as the approximate result or using the

last received previously cycled result from a failing node that has successfully cycled

more than once as the approximate result, using said portion if said client fails to return

said result to said manager, wherein said manager is configured to determine a client

failure to return said results based upon either a receipt of a message indicating that the

client is no longer connected to the network, or an expiration of a previously defined

time delay for said client to provide said result, wherein said manager is configured to

approximate said result based at least in part upon at least one previous result received

from said client that failed to return said result, and wherein said manager is configured

to make a programmatic decision as to whether to approximate said result when said

client fails to return it or whether to re-execute said task at said manager to generate

said result based upon whether a computed degree of error computed for approximating

said result exceeds a previously defined threshold for an acceptable degree of error

during approximations.

       Claim 13 has been amended to read:

       A computer-readable storage medium comprising: a plurality of computing

instructions for a manager connectable to a plurality of clients via a network, said

computing instructions for defining a computing task and assigning a portion of said task

to each of said clients, each of said plurality of clients configured to produce a result by

performing a computation using said portion, said instructions including steps for

approximating a result of said portion if said client fails to return said result to said

manager, where the step of approximating is at least one of: using the initial data that

was passed to the failing node as the approximate result or using the last received

previously cycled result from a failing node that has successfully cycled more than once

as the approximate result, and wherein computing instructions are configured to

determine a client failure to return said results based upon either a receipt of a message

indicating that the client is no longer connected to the network or an expiration of a

previously defined time delay for said client to provide said result, wherein said

computing instructions are configured to approximate said result based at least in part

upon at least one previous result received from said client that failed to return said

result, and wherein said computing instructions are configured to make a programmatic

decision as to whether to approximate said result when said client fails to return it or

whether to re-execute said task at said manager to generate said result based upon

whether a computed degree of error computed for approximating said result exceeds a

previously defined threshold for an acceptable degree of error during approximations.

    Claim 19 has been amended to read:

    A method for grid computing, comprising: dividing a computing task into a

plurality of portions, wherein the computing task relates to an n-body type problem

concerning a plurality of bodies, each portion relates to not more than one body of the

plurality of bodies and comprises data corresponding to the body; assigning the plurality

of portion to a plurality of clients, wherein at least one portion is assigned to each of the

plurality of clients, each of the plurality of clients connected to a network; processing the

plurality of portions at the plurality of clients, wherein each client of the plurality of clients

is configured to compute a result of the body for each portion assigned to the client

based upon the data corresponding to the body; compiling results computed by the

plurality of clients for each of the plurality of portions; repeating the dividing, assigning,

processing, and compiling in iterative cycles until the computing task is finished; while

repeating, failing to receive results from at least one client of the plurality of clients;

in response to failing to receive results from the at least one client, ~~using a previous~~

~~result produced by the at least one client during a previous cycle in compiling results for~~

~~a present cycle.~~ approximating the results that were not received, where the step of approximating is at least one of: using the initial data that was passed to the failing node as the approximate result or using the last received previously cycled result from a failing node that has successfully cycled more than once as the approximate result.

3.   The following is an examiner's statement of reasons for allowance:

The step of approximating the results that were supposed to be received from a failing node is not found in the prior-art in as much as the same methods used in the applicant's system. In a traditional system, the prior-art shows that when a node fails to return its results, it either attempts to re-compute the results from the beginning (generally by sending it to another working node) or it uses the progress made by the failing node as a starting point to continue processing the failing nodes data so that the expected results can be computed and returned. The novelty in the applicant's system is that it does not continue to process the results that it had originally sent out. Rather, the applicant's system either takes the initial data that was passed to the failing node and passes it forward as, due to the numerous iterations/cycles that are taking place on a single piece of data, it will be approximately the same as the results that would have been returned from the failing node, or it takes the last piece of intermediary cycled results and utilizes them as an approximation (based on the same principles as the other method). Thus, the prior-art will re-compute to receive failed results and the applicant's system will approximate what the failed results would have been.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH L. GREENE whose telephone number is (571)270-3730. The examiner can normally be reached on Monday - Thursday from 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLG